

In the Specification:

Please amend various paragraphs to read as follows:

[0005] For chronic catheterization, in which the catheter is intended to remain inside the patient for an extended period of time, such as for weeks or even months, it is typically desired to subcutaneously tunnel the catheter using various tunneling techniques. The catheter is typically tunneled into the patient prior to inserting the catheter into the patient's vein. The catheter typically includes a catheter ingrowth cuff that allows skin tissue [[to]] forming the subcutaneous tunnel to grow into the ingrowth cuff to secure the catheter subcutaneously to the patient. The catheter also typically includes a hub that extends proximally of the subcutaneous tunnel. The hub usually includes at least one suture wing that allows the surgeon to suture the hub to the patient's skin, to further secure the catheter to the patient.

[0008] Briefly, the present invention provides a catheter hub. The catheter hub comprises a lower portion having a lower distal end and a lower proximal end. The lower distal end includes a lower distal channel extending from the lower distal end toward the lower proximal end. The lower proximal end includes first and second lower proximal channels extending from the lower proximal end toward the lower distal end such that the first and second lower proximal channels fluidly communicate with the lower distal channel. The hub also comprises an upper portion having an upper distal end and an upper proximal end. The upper distal end includes an upper distal channel extending from the lower distal end toward the lower proximal end. The upper proximal end includes first and second upper proximal channels extending from the upper proximal end toward the upper distal end such that the first and second

upper proximal channels fluidly communicate with the upper distal channel. The hub further comprises a hinge connecting the lower portion and the upper portion and ~~means~~ a locking section for releasably securing the lower portion and the upper portion to each other, distal from the hinge. When the lower portion is releasably secured to the upper portion, the lower distal channel and the upper distal channel form a distal passageway, the first lower proximal channel and the first upper proximal channel form a first proximal passageway and the second lower proximal channel and the second upper proximal channel form a second proximal passageway.

[0009] Additionally, the present invention provides a catheter hub. The catheter hub comprises a lower portion having a lower proximal end, a lower distal end, and a lower channel extending between the lower proximal end and the lower distal end. The catheter hub further comprises an upper portion having an upper proximal end, an upper distal end, and an upper channel extending between the upper proximal end and the upper distal end. The catheter hub further comprises a hinge connecting the lower portion and the upper portion and ~~means~~ a locking section for releasably securing the lower portion and the upper portion to each other, distal from the hinge. When the lower portion is releasably secured to the upper portion, the lower channel and the upper channel form a passageway.

[0010] Further, the present invention provides a catheter hub. The catheter hub comprises a lower portion having a lower distal end and a lower proximal end. The lower distal end includes a lower distal channel extending from the lower distal end toward the lower proximal end. The lower proximal end includes first and second lower proximal channels extending from the lower proximal end toward the lower distal end. The first and second lower proximal channels fluidly communicate with the lower distal channel. The hub further includes an upper portion having an upper distal end and an upper proximal end, a hinge connecting the

lower portion and the upper portion, and means a locking section for releasably securing the lower portion and the upper portion to each other, distal from the hinge. When the lower portion is releasably secured to the upper portion, the lower distal channel and the upper portion form a distal passageway, the first lower proximal channel and the upper portion form a first proximal passageway and the second lower proximal channel and the upper portion form a second proximal passageway.

[0021] Preferably, the catheter 170 is inserted into the patient without the hub 100 being connected to the catheter 170. After the catheter 170 is inserted into the patient, the hub 100 is connected to the catheter 170 such that the lumens 172, 174 converge within the hub 100 to form a unitary catheter body 176 comprised of distal ends 172b, 174b of the first and second lumens 172, 174, respectively. A portion of the distal ends 172b, 174b of the lumens 172, 174 that will be immediately distal of the hub 100 are inserted subcutaneously through the patient's skin tissue, while ~~[[a]]~~ remaining, most distal ~~portion~~ portions of the distal ends 172a, 172b are inserted into the blood vessel being catheterized. After the implanting surgeon is satisfied with the placement of the most distal ~~portion~~ portions of the distal ends 172a, 172b of the catheter 170 in the patient's blood vessel, the hub 100 is connected to the catheter 170.

[0022] The hub 100 comprises a unitary body 102, best seen in Figs. 2 and 3, that is preferably constructed from a polymer, such as polypropylene, although those skilled in the art will recognize that other suitable materials may be used. The body 102 includes a bottom portion 110 and a top portion 130 that generally fits over the lower portion 110 when the hub 100 is in a closed position, as shown in Fig. 1. A hinge 150 connects the lower portion 110 and the upper portion 130 at the hinge 150.

[0024] The upper portion 130 includes an upper distal end 132 and an upper proximal end 134. The upper distal end 132 includes an upper distal channel 136 that extends from the upper distal end 132 toward the upper proximal end 134. The upper proximal end 134 includes first and second upper proximal channels 138, 140 that extend from the upper proximal end 134 toward the upper distal end 132. The first and second upper proximal channels 138, 140 fluidly communicate with the upper distal channel 136 at a junction 142. The upper distal channel 136 includes ~~raised~~ recessed portions 136a, 136b on either side between the junction 142 and the upper distal end 132, such that, when the hub 100 is in a closed position, each ~~raised~~ recessed portion 136a, 136b ~~is disposed within~~ opposes a respective opening 116a, 116b in the lower distal channel 116.

[0025] The hinge 150 connects the lower portion 110 and the upper portion 130 at the lower proximal end 114 of the lower portion 110 and the upper proximal end 134 of the upper portion 130. The hinge 150 is disposed between the first and second lower proximal channels 118, 120, respectively. Preferably, the hinge 150 is a living hinge, constructed from the same material as the body 102. A ~~means~~ locking section for releasably securing the lower proximal end 112 of the lower portion 110 and the upper proximal end 134 of the upper portion 130 to each other is disposed on each of the lower and upper portions 110, 130, distal of the hinge 150
[[.]] ~~The means for releasably securing the lower proximal end 112 of the lower portion 110 and the upper proximal end 134 of the upper portion 130 to each other~~ and includes first and second tabs 152a, 152b that extend from the distal end 112 of the lower portion 110 on either side of the lower distal channel 116. Each tab 152a, 152b includes a respective lower beveled lip 154a, 154b that extends generally toward the hinge 150. Each lower beveled lip 154a, 154b is

releasably engageable with an upper beveled lip 156a, 156b, respectively, when the lower portion 110 is pivoted about the hinge 150 to engage the upper portion 130.

[0027] Hub 100 is provided with a securing section for being securable to a patient. A plurality of lower suture wings 160, 162 extend outwardly from the lower portion 110, preferably proximate to the first and second lower beveled lips 154a, 154b, respectively, and include a generally flat face 161, 163, respectively. A plurality of upper suture wings 164, 166 extend outwardly from the upper portion 130, preferably proximate to the first and second upper beveled lips 156a, 156b, respectively, and include a generally flat face 165, 167, respectively. When the hub 100 is in the closed position, the flat face 161 engages the flat face 165 and the flat face 163 engages the flat face 167 to form a single suture wing assembly 168, 169, respectively, on either side of the hub body 102. While suture wing assemblies 168, 169 are preferred, those skilled in the art will recognize that at least one of the suture wing assemblies 168, 169 may be omitted without departing from the scope of the present invention. The suture wing assemblies 168, 169 are used to releasably secure the hub 100 to the exterior of the patient's body, as is well known in the art.

[0028] In use, a catheter 170 ~~, such as the catheter disclosed in U.S. Patent Application Serial No. 60/423,002, is preferably inserted into a patient according to methods and procedures known to those skilled in the art or as disclosed in U.S. Patent Application Serial No. 60/423,002.~~ The catheter is inserted without the hub 100 attached to and the proximal end of the catheter 170 is subcutaneously tunneled according to known techniques. The proximal end of the catheter 170 may be subcutaneously tunneled prior to or after insertion of the distal end of the catheter 170 into the patient.

[0029] The hub 100 is then connected to the catheter by opening the hub 100 to the position shown in Fig. 2. The first lumen 172 is disposed in the first lower proximate channel 118 and the second lumen 174 is disposed within the second lower proximate channel 120. The unitary catheter body 176 is disposed in the lower distal channel 122. The upper portion 130 is pivoted about the hinge 150 so that the first upper proximate channel 138 is disposed over the first lumen 172 and the second upper proximate channel 140 is disposed over the second lumen 174. The upper distal channel 142 is disposed over the unitary catheter body 176. Each lower beveled lip 154a, 154b interlockingly fits with a respective upper beveled lip 156a, 156b such that the lower portion 110 and the upper portion 130 are releasably secured to each other remote from the hinge 150. The locator pins 158 are each disposed within a respective locator recess 159. The hub 100 is now releasably connected to the catheter 170.